

REMARKS

Claims 1-29 are pending in the present application. Claims 1-18 have been withdrawn by the Examiner in light of the Applicants' response to the Restriction Requirement, claim 24 has been canceled and no claims have been added by the claim amendments reflected above. The Applicants respectfully submit, therefore, that claims 19-23 and 25-29 remain under consideration on the merits in this application. Reconsideration of these claims in view of the remarks provided above and the arguments and comments provided below is kindly requested.

Rejection Under 35 U.S.C. § 112

Claim 29 stands rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential elements, *i.e.*, process steps for forming a dielectric layer. The Applicants respectfully submit that the amendments to claim 29 reflected above are sufficient to overcome this rejection.

The Applicants respectfully request, therefore, that this rejection be reconsidered and withdrawn accordingly.

Rejections Under 35 U.S.C. §§ 102 and/or 103

Claims 19-27 and 29 stand rejected under 35 U.S.C. § 102(e) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as unpatentable over either Lim *et al.*'s U.S. Pub. Pat. Appl. No. 2003/0040196 ("Lim") or Koh *et al.*'s U.S. Pub. Pat. Appl. No. 2004/0009307 ("Koh"). The Applicants respectfully traverse these rejections for the reasons detailed below.

The Applicants initially note that neither of the applied references are U.S. patents and that neither of the applied references or the present application have an effective filing dates

earlier than November 29, 2000. Accordingly, the Applicants respectfully contend that the discussion of 1999 (AIPA) and the corresponding 2002 amendments provided in the Action appear to be misplaced in this instance. The Applicants also note that the recitation of 35 U.S.C. § 102(e) provided in the Action does not appear to conform to the current text of this section.

The Applicants also note that the Action does not include “(A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,” MPEP § 706.02(j), but has simply cited every figure, the entire specification and the claims. Action at 3. To the extent that more specific citation is provided, the Applicants respectfully contend that paragraphs [0024-25] are simply recitations of certain objects of the invention and do not comprise any particular teaching or suggestion sufficient to anticipate or obviate the rejected claims.

The Applicants also note that paragraph [0056] is specific to silicon dioxide formation and recites the process in language sufficiently broad that one skilled in the art would be forced to undertake undue experimentation to establish the various process parameters and materials necessary for the “method” to perform as suggested. Further, the Applicants note that paragraph [0067] appears to be directed to the production of a gate oxide that further utilizes “an annealing process ... under oxygen or oxygen radical atmosphere at high temperature” in order to achieve a suitable lanthanum oxide film, but does not include any indication as to the lower T_2 and higher T_1 temperatures required to practice this method. The Applicants also contend that cited paragraphs [0078-84] are deficient with regard to the necessary process details that would allow one of ordinary skill to practice the disclosed process without undue experimentation.

With respect to Koh, the Applicants respectfully note that this reference is directed to a range of ALD processes, but contend that the present citation of “figs. 1-4,” Action at 4, *i.e.*, all

of the figures, and the “related text on pages 3-9,” *id.*, *i.e.*, the complete detailed description and all of the claims, lacks the required specificity for supporting the present rejection according to MPEP § 706.02(j).

In the extent that the Examiner wishes to maintain a rejection of these claims based on these references, the Applicants respectfully request that in the next Office Action the Examiner provide:

(A) the relevant teachings of the prior art relied upon, preferably *with reference to the relevant column or page number(s) and line number(s) where appropriate*,

(B) the difference or differences in the claim over the applied reference(s),

(C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and

(D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification for each limitation of the rejected claims.

Absent such detail, the Applicants respectfully maintain that they have not had a full and fair opportunity to understand and address the Examiner’s reasoning.

The Applicants respectfully maintain, therefore, that neither Lim nor Koh has been demonstrated to teach or suggest the invention as presently defined by the pending claims to one of ordinary skill and request that this rejection be withdrawn accordingly.

Claim 28 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Lim *et al.*’s U.S. Pub. Pat. Appl. No. 2003/0040196 (“Lim”). The Applicants respectfully traverse these rejections for the reasons detailed below.

The Applicants note that Lim does not provide any guidance regarding the identity of the M_1 and M_2 species that would result in one of ordinary skill in the art selecting species whereby the “first alkoxide includes hafnium and the second alkoxide includes aluminum” as recited in claim 28. Indeed, one of ordinary skill in the art guided by Lim’s paragraph [0084] would tend to use Al, a group III metal, as a dopant rather than as a separate functional layer in combination with a dielectric layer containing hafnium. Further, the Applicants contend that neither Lim nor Koh teach the use of N_2O in the production of oxide layers.

The Applicants respectfully maintain, therefore, that Lim does not teach or suggest the invention as presently defined by claim 28 and request that this rejection be withdrawn accordingly.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and allowance of each of claims 19-23 and 25-29 in connection with the present application is earnestly solicited.

Should there be any pending matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the number listed below

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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By 

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